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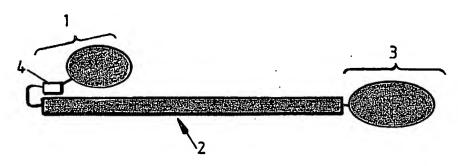
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(54) Title: COLLAGEN FIBRILS CARRYING BIOACTIVE HETEROLOGOUS DOMAINS AND THEIR USE IN E.G. WOUND **HEALING**



(57) Abstract: A modified pro-α chain comprising a triple helix forming domain linked to at least an N-terminal domain, the N-terminal domain containing a polypeptide from at least part of a laminin glycoprotein or secretory leukocyte protease inhibitor. The pro-α chain may form part of a procollagen molecule that has the N-terminal domain retained. The procollagen molecules may be incorporated into collagen polymers, matrices and gels and be used for such applications as wound healing.



PCT/GB2004/001719

					
A. CLASSIF IPC 7	CO7K14/78 C12N15/62 CO7K14/8	1 . A61K38/39			
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B. FIELDS	SEARCHED				
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Electronic da	ata base consulted during the international search (name of data base	and, where practical, search terms used)			
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	ENTS CONSIDERED TO BE RELEVANT	rant nassages	Relevant to claim No.		
Category *	Citation of document, with indication, where appropriate, of the relev	ant passages	reservant to signification.		
Y	EP 0 747 068 A (JOHNSON & JOHNSON 11 December 1996 (1996-12-11)	MEDICAL)	1-10, 12-17, 19-21, 23-37		
	column 1, line 34 - line 42; clai	ms 9,16			
Y	EP 0 985 732 A (TERUMO CORP) 15 March 2000 (2000-03-15) cited in the application		1-10, 12-17, 19-21, 23-37		
	the whole document		<u> </u>		
A	US 5 266 328 A (FURCHT LEO T ET 30 November 1993 (1993-11-30) column 15, line 23 - line 30	AL)	÷		
A	EP 0 704 532 A (UNITED STATES SUR CORP) 3 April 1996 (1996-04-03) the whole document	RGICAL			
Furt	ther documents are listed in the continuation of box C.	Patent family members are listed in	n annex.		
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other	means ent published prior to the international filing date but	ments, such combination being obvious in the art.	us to a person skilled		
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INTERNATIONAL SEARCH REPORT

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Box No.	Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)
1. Wi	h regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed ention, the international search was carried out on the basis of:
a.	type of material X a sequence listing table(s) related to the sequence listing
b.	format of material X in written format X in computer readable form
c.	contained in the international application as filed filed together with the international application in computer readable form furnished subsequently to this Authority for the purpose of search
2. X	In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Ad	ditional comments:

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 0747068	A	11-12-1996	GB US AU BR CA EP JP NO NZ	9099051 962181 286588	A A A	04-12-1996 09-02-1999 01-10-1998 12-12-1996 22-04-1998 01-12-1996 11-12-1996 15-04-1997 02-12-1996 28-07-1998 17-11-1997
EP 0985732	A	15-03-2000	JP EP US	2000125872 0985732 6277600	A2	09-05-2000 15-03-2000 21-08-2001
US 5266328	Α	30-11-1993	NONE			
EP 0704532	A	03-04-1996	CA DE DE EP	2151547 69528128 69528128 0704532	D1 T2	11-12-1995 17-10-2002 13-03-2003 03-04-1996